

**Claims:**

1. An HVAC duct and pillar assembly for an automotive vehicle

comprising:

5 a rear pillar having a vertically extending section and a horizontally  
extending section, the pillar having a wall defining a hollow space extending  
axially therein, the hollow space communicating with a first opening through  
the vertical section and a second opening through the horizontal section;

10 an HVAC duct disposed within the hollow space and extending between  
the first and second openings through the pillar, the duct having an air inlet  
aligned with the first opening and an air outlet aligned with the second  
opening;

a layer of a cellular structure disposed between the duct and the wall of  
the pillar, and

15 expandable adhesive between the cellular structure and the wall for  
bonding the cellular structure to the wall.

2. The HVAC duct and pillar assembly according to claim 1 wherein the  
duct is made of polyamide and the wall of the pillar is made of sheet metal.

20 3. The HVAC duct and pillar assembly according to claim 2 wherein the  
sheet metal is steel.

4. The HVAC duct and pillar assembly according to claim 3 wherein  
interior trim is disposed adjacent to an interior wall portion of the wall of the

rear pillar and body structure is disposed adjacent to an exterior wall portion of the wall of the rear pillar.

5        5.        The HVAC duct and pillar assembly according to claim 1 wherein the cellular structure is structural foam.

6.        A duct and vehicular frame member assembly, comprising:  
          a hollow vehicular frame member having a wall defining an axially  
extending space with lateral openings through the frame member;  
10            a duct extending coaxially in the space and having duct openings  
aligned with the lateral openings through the frame member; and  
          a layer of a cellular structure disposed between the duct and the wall,  
the layer of the cellular structure being adhered to the wall of the hollow  
vehicular frame member.

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7.        The duct and vehicular frame member assembly according to claim 6 wherein the vehicular frame member is a pillar and wherein the duct is an HVAC duct with an inlet and an outlet aligned with the openings.

20        8.        The duct and vehicular frame member according to claim 6 wherein the vehicular frame member is made of metal and the duct is made of a resinous material.

9. The duct and vehicular frame member according to claim 6 wherein the cellular structure is structural foam.

10. The duct and vehicular frame member assembly of claim 6 further including expandable adhesive between the cellular structure and the wall.

11. The duct and vehicular frame member assembly of claim 6 wherein the cellular structure is expandable foam which expands between the duct and the wall.

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12. The duct and wall assembly of claim 11 wherein the structural foam is polyurethane.

13. A method of making a duct and vehicular frame member assembly, comprising:

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providing a vehicular frame member with a wall defining a hollow axially extending space with openings through the wall at locations spaced from one another;

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providing a duct having inlet and outlet openings and covered with a layer of cellular structure;

disposing a heat expandable adhesive between the cellular structure and the wall of the vehicular frame member;

retaining the duct within the axially extending hollow space of the vehicular frame member with the inlet and outlet of the duct being aligned

with the openings through the wall of the vehicular frame member, and  
expanding the heat expandable adhesive by heating the vehicular  
frame member to bond the heat expandable adhesive to the wall of the  
vehicular frame member.

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14. The method of claim 13 wherein the cellular structure is structural  
foam.

15. The method according to claim 14 wherein heating the vehicular frame  
10 member occurs during baking of the vehicular frame member after painting  
the vehicular frame member.

16. The method according to claim 15 wherein the duct is made of a  
polyamide material.

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17. The method according to claim 13 wherein the vehicular frame  
member is adapted to be positioned in a vehicle between a passenger  
compartment of the vehicle and an exterior body structure of the vehicle, and  
wherein the wall of the vehicular frame member has an interior wall portion  
and an exterior wall portion, the interior portion adapted to be disposed  
20 adjacent to the cabin and the exterior portion adapted to be disposed  
adjacent to the body structure with the openings being through the interior  
portion; the method further including attaching the duct to the interior portion,

and thereafter welding the exterior portion to the interior portion for defining the axially extending space which encloses the duct therein.

18. The method according to claim 13 wherein the vehicular frame member is a rear pillar which is part of a frame enclosing the passenger compartment of the vehicle, and wherein the method is an assembly step occurring during framing the vehicle but before adding interior trim and exterior body structure to the frame.